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EXAMINER	
PHILPOTT, JUSTIN M	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/780,501	ABETA ET AL.	
	Examiner	Art Unit	
	Justin M. Philpott	2616	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) *42-49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed July 11, 2006 have been fully considered but they are not persuasive.

First, applicant argues (pages 16-18) that Sakoda does not teach "controlling the number of information symbols to be used in the spreading into the plurality of sub-carrier components for each user" as recited in claims 1 and 21. However, as discussed in the previous office action, and repeated herein, Sakoda teaches controlling the number of the information symbols to be used (e.g., see col. 7, lines 1-7 regarding controlling the "number of symbols outputted to a subsequent state") in the spreading into the plurality of sub-carrier components (e.g., see col. 9, lines 19-26 regarding "symbols distributed among a plurality of subcarriers") for each user to which the information is to be transmitted (e.g., see col. 6, line 66 – col. 7, line 10; col. 9, line 10 – col. 22, line 7; and col. 25, line 59 – col. 28, line 13). Thus, applicant's argument is not persuasive.

Second, applicant argues (pages 18-19) that the description in page 26 of applicant's specification is not taught by Sakoda. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the description in page 26 of applicant's specification) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26

USPQ2d 1057 (Fed. Cir. 1993). Thus, applicant's argument is moot since the description in page 26 of applicant's specification is not recited in applicant's claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-3, 5-24 and 26-41 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,563,881 to Sakoda et al., and under 35 U.S.C. 102(b) as being anticipated by corresponding WIPO Publication No. WO 00/03508 by Sakoda et al. (hereafter, reference and citations are made to U.S. Patent No. 6,563,881, serving as an English translation for WO 00/03508).

Regarding claim 1, Sakoda teaches a multi-carrier CDMA radio transmitting method (e.g., see col. 1, lines 18-29 regarding DS-CDMA and col. 2, lines 53-59 and col. 4, lines 39-59 regarding transmission in a multi-carrier scheme) replicating each information symbol (e.g., see symbol repetition unit 152 in FIG. 17 and col. 15, line 41 – col. 16, line 15), disposing thus-obtained information symbols along a frequency axis (e.g., see col. 10, lines 30-32 and col. 15, line 41 – col. 17, line 49 regarding frequency axis), multiplying the thus-obtained information symbols by a spreading code along a frequency axis (e.g., see col. 5, lines 18-25 regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading performed with a spread factor), thus spreading the information symbols into components of a plurality of sub-carriers having different frequencies (e.g., see col. 4, lines 39-59; col. 5, lines 18-42; and col. 10, lines 23-44), and thus rendering multiplex transmission of the information (e.g., see col. 5, line 18 – col. 6, line 3), comprising the step of: enabling a transmission rate of the information to be changed (e.g., see col. 6, lines 4-8; col. 6, line 66 – col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates) by controlling the amount of information transmitted simultaneously (e.g., see col. 6, line 66 – col. 7, line 2 regarding sample rate) by controlling the number of the information symbols to be used in the spreading into the plurality of sub-carrier components (e.g., see col. 7, lines 1-7 regarding controlling the "number of symbols outputted to a subsequent state") for each user to which the information is to be transmitted (e.g., see col. 6, line 66 – col. 7, line 10; col. 9, line 10 – col. 22, line 7; and col. 25, line 59 – col. 28, line 13).

Regarding claim 2, Sakoda teaches codes orthogonal with each other are used as the spreading codes used in the spreading of the information symbols for respective users (e.g., see col. 24, lines 16-35 regarding orthogonality).

Regarding claim 3, Sakoda teaches the number of sub-carriers assigned for the spreading of all information symbols to be transmitted simultaneously is fixed (e.g., see col. 9, lines 19-26), and the number of sub-carriers assigned for the spreading of each information symbol is controlled (e.g., see col. 9, line 28 – col. 10, line 22).

Regarding claim 5, Sakoda teaches the number of sub-carriers assigned for the spreading of each information symbol is fixed (e.g., see col. 9, lines 19-26), and, according to the number of information symbols to be used in the spreading into the plurality of sub-carrier components, the number of sub-carriers assigned for the overall spreading of the number of information symbol is controlled (e.g., see col. 9, line 28 – col. 10, line 22).

Regarding claim 6, Sakoda teaches a group of sub-carriers (e.g., plurality of subcarriers, see col. 4, lines 39-59) assigned for the spreading of each of all the information symbols to be transmitted simultaneously is made same among the respective information symbols (e.g., see col. 15, line 9 – col. 16, line 15), and the spreading codes used for the spreading of the respective information symbols are made different (e.g., see col. 1, lines 51-59 regarding changing the spreading factor).

Regarding claim 7, Sakoda teaches a multi-carrier CDMA radio transmitting method (e.g., see col. 1, lines 18-29 regarding DS-CDMA and col. 2, lines 53-59 and col. 4, lines 39-59 regarding transmission in a multi-carrier scheme) replicating each information symbol (e.g., see symbol repetition unit 152 in FIG. 17 and col. 15, line 41 – col. 16, line 15), disposing thus-obtained information symbols along a frequency axis (e.g., see col. 10, lines 30-32 and col. 15, line 41 – col. 17, line 49 regarding frequency axis), multiplying the thus-obtained information symbols by a spreading code along a frequency axis (e.g., see col. 5, lines 18-25 regarding

spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading performed with a spread factor), thus spreading the information symbols into components of a plurality of sub-carriers having different frequencies (e.g., see col. 4, lines 39-59; col. 5, lines 18-42; and col. 10, lines 23-44), and thus rendering multiplex transmission of the information (e.g., see col. 5, line 18 – col. 6, line 3), comprising the step of: enabling a transmission rate of the information to be changed (e.g., see col. 6, lines 4-8; col. 6, line 66 – col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates) by controlling multiplex transmission intervals along a time axis (e.g., see col. 10, lines 15-44 regarding time axis, and see col. 12, lines 3-16 regarding multiplexed transmission) for each user to which the information is to be transmitted (e.g., see col. 6, line 66 – col. 7, line 10; col. 9, line 10 – col. 22, line 7; and col. 25, line 59 – col. 28, line 13).

Regarding claim 8, Sakoda teaches a multi-carrier CDMA radio transmitting method (e.g., see col. 1, lines 18-29 regarding DS-CDMA and col. 2, lines 53-59 and col. 4, lines 39-59 regarding transmission in a multi-carrier scheme) replicating each information symbol (e.g., see symbol repetition unit 152 in FIG. 17 and col. 15, line 41 – col. 16, line 15), disposing thus-obtained information symbols along a frequency axis (e.g., see col. 10, lines 30-32 and col. 15, line 41 – col. 17, line 49 regarding frequency axis), multiplying the thus-obtained information symbols by a spreading code along a frequency axis (e.g., see col. 5, lines 18-25 regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading performed with a spread factor), thus spreading the information symbols into components of a plurality of sub-carriers having different frequencies (e.g., see col. 4, lines 39-59; col. 5, lines 18-42; and col. 10, lines 23-44), and thus rendering multiplex transmission of the information (e.g., see col. 5, line

18 – col. 6, line 3), comprising the step of: enabling a transmission rate of the information to be changed (e.g., see col. 6, lines 4-8; col. 6, line 66 – col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates) by controlling the number of modulation levels (e.g., see col. 12, lines 17-36 regarding differential modulation; and see col. 17, line 64 – col. 19, line 31 regarding controlling different modulation levels) used when the information symbols to be spread are obtained through data modulation. (e.g., see col. 6, line 66 – col. 7, line 10; col. 9, line 10 – col. 22, line 7; and col. 25, line 59 – col. 28, line 13).

Regarding claims 9-11, Sakoda teaches respective sub-carriers assigned for the spreading of the information symbols are orthogonal along the frequency axis (e.g., see col. 9, line 10 – col. 10, line 44; and col. 24, lines 16-35 regarding orthogonality).

Regarding claims 12-14, Sakoda teaches respective sub-carriers assigned for the spreading of the information symbols have frequency characteristics such that the frequency spectra do not overlap between each adjacent sub-carrier (e.g., see col. 9, line 10 – col. 10, line 44).

Regarding claims 15-20, Sakoda teaches respective sub-carriers assigned for the spreading of each information symbol are disposed discretely, successively, and continuously along the frequency axis (e.g., see col. 9, line 10 – col. 10, line 44).

Regarding claim 21, Sakoda teaches a multi-carrier CDMA radio transmitting apparatus (e.g., see col. 1, lines 18-29 regarding DS-CDMA and col. 2, lines 53-59 and col. 4, lines 39-59 regarding transmission in a multi-carrier scheme) replicating each information symbol (e.g., see symbol repetition unit 152 in FIG. 17 and col. 15, line 41 – col. 16, line 15), disposing thus-obtained information symbols along a frequency axis (e.g., see col. 10, lines 30-32 and col. 15,

line 41 – col. 17, line 49 regarding frequency axis), multiplying the thus-obtained information symbols by a spreading code along a frequency axis (e.g., see col. 5, lines 18-25 regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading performed with a spread factor), thus spreading the information symbols into components of a plurality of sub-carriers having different frequencies (e.g., see col. 4, lines 39-59; col. 5, lines 18-42; and col. 10, lines 23-44), and thus rendering multiplex transmission of the information (e.g., see col. 5, line 18 – col. 6, line 3), comprising: a transmission rate control part (e.g., within transmitter, see FIG. 6; and see col. 6, lines 4-8; col. 6, line 66 – col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates) controlling the amount of information transmitted simultaneously (e.g., see col. 6, line 66 – col. 7, line 2 regarding sample rate) by controlling the number of the information symbols to be used in the spreading into the plurality of sub-carrier components (e.g., see col. 7, lines 1-7 regarding controlling the "number of symbols outputted to a subsequent state") for each user to which the information is to be transmitted (e.g., see col. 6, line 66 – col. 7, line 10; col. 9, line 10 – col. 22, line 7; and col. 25, line 59 – col. 28, line 13).

Regarding claim 22, Sakoda teaches codes orthogonal with each other are used as the spreading codes used in the spreading of the information symbols for respective users (e.g., see col. 24, lines 16-35 regarding orthogonality).

Regarding claim 23, Sakoda teaches the transmission-rate control part comprises serial-to-parallel converting part (e.g., separation circuit 166, see FIG. 20) converting series data which is the information to be transmitted to each user into parallel information symbols, and controls the number of the parallel information symbols obtained by the serial-to-parallel converting part (e.g., see col. 17, line 20 – col. 18, line 9).

Regarding claim 24, Sakoda teaches the number of sub-carriers assigned for the overall spreading of the information symbols, the number of which is controlled by the transmission-rate control part (e.g., within transmitter, FIG. 6), is fixed(e.g., see col. 9, lines 19-26), and the number of sub-carriers assigned for the spreading of each information symbol is controlled (e.g., see col. 9, line 28 – col. 10, line 22).

Regarding claim 26, Sakoda teaches the number of sub-carriers assigned for the spreading of each information symbol is fixed (e.g., see col. 9, lines 19-26), and, according to the number of information symbols controlled by the transmission-rate control part (e.g., within transmitter, FIG.6), the number of sub-carriers assigned for the overall spreading of the number of information symbol is controlled (e.g., see col. 9, line 28 – col. 10, line 22).

Regarding claim 27, Sakoda teaches a group of sub-carriers (e.g., plurality of subcarriers, see col. 4, lines 39-59) assigned for the spreading of each of all the information symbols, the number of which is controlled by the transmission-rate control part (e.g., within transmitter, FIG. 6), is made same among the respective information symbols (e.g., see col. 15, line 9 – col. 16, line 15), and the spreading codes used for the spreading of the respective information symbols are made different (e.g., see col. 1, lines 51-59 regarding changing the spreading factor).

Regarding claim 28, Sakoda teaches a multi-carrier CDMA radio transmitting apparatus (e.g., see col. 1, lines 18-29 regarding DS-CDMA and col. 2, lines 53-59 and col. 4, lines 39-59 regarding transmission in a multi-carrier scheme) replicating each information symbol (e.g., see symbol repetition unit 152 in FIG. 17 and col. 15, line 41 – col. 16, line 15), disposing thus-obtained information symbols along a frequency axis (e.g., see col. 10, lines 30-32 and col. 15, line 41 – col. 17, line 49 regarding frequency axis), multiplying the thus-obtained information

symbols by a spreading code along a frequency axis (e.g., see col. 5, lines 18-25 regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading performed with a spread factor), thus spreading the information symbols into components of a plurality of sub-carriers having different frequencies (e.g., see col. 4, lines 39-59; col. 5, lines 18-42; and col. 10, lines 23-44), and thus rendering multiplex transmission of the information (e.g., see col. 5, line 18 – col. 6, line 3), comprising: an intermittent control part controlling (e.g., within transmitter, FIG. 6; also see col. 6, lines 4-8; col. 6, line 66 – col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates) controlling multiplex transmission intervals along a time axis (e.g., see col. 10, lines 15-44 regarding time axis, and see col. 12, lines 3-16 regarding multiplexed transmission) for each user to which the information is to be transmitted (e.g., see col. 6, line 66 – col. 7, line 10; col. 9, line 10 – col. 22, line 7; and col. 25, line 59 – col. 28, line 13).

Regarding claim 29, Sakoda teaches a multi-carrier CDMA radio transmitting apparatus (e.g., see col. 1, lines 18-29 regarding DS-CDMA and col. 2, lines 53-59 and col. 4, lines 39-59 regarding transmission in a multi-carrier scheme) replicating each information symbol (e.g., see symbol repetition unit 152 in FIG. 17 and col. 15, line 41 – col. 16, line 15), disposing thus-obtained information symbols along a frequency axis (e.g., see col. 10, lines 30-32 and col. 15, line 41 – col. 17, line 49 regarding frequency axis), multiplying the thus-obtained information symbols by a spreading code along a frequency axis (e.g., see col. 5, lines 18-25 regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading performed with a spread factor), thus spreading the information symbols into components of a plurality of sub-carriers having different frequencies (e.g., see col. 4, lines 39-59; col. 5, lines 18-42; and col. 10, lines 23-44), and thus rendering multiplex transmission of the information (e.g., see col. 5, line

18 – col. 6, line 3), comprising: a modulation level control part (e.g., inherently within transmitter, FIG. 6; also see col. 6, lines 4-8; col. 6, line 66 – col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates) by controlling the number of modulation levels (e.g., see col. 12, lines 17-36 regarding differential modulation; and see col. 17, line 64 – col. 19, line 31 regarding controlling different modulation levels) used when the information symbols to be spread are obtained through data modulation. (e.g., see col. 6, line 66 – col. 7, line 10; col. 9, line 10 – col. 22, line 7; and col. 25, line 59 – col. 28, line 13).

Regarding claims 30-32, Sakoda teaches respective sub-carriers assigned for the spreading of the information symbols are orthogonal along the frequency axis (e.g., see col. 9, line 10 – col. 10, line 44; and col. 24, lines 16-35 regarding orthogonality).

Regarding claims 33-35, Sakoda teaches respective sub-carriers assigned for the spreading of the information symbols have frequency characteristics such that the frequency spectra do not overlap between each adjacent sub-carrier (e.g., see col. 9, line 10 – col. 10, line 44).

Regarding claims 36-41, Sakoda teaches respective sub-carriers assigned for the spreading of each information symbol are disposed discretely, successively, and continuously along the frequency axis (e.g., see col. 9, line 10 – col. 10, line 44).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakoda.

Regarding claims 4 and 25, Sakoda teaches the method discussed above regarding claims 3 and 24, however, may not specifically disclose the number of information symbols to be used in the spreading into the plurality of sub-carrier components is in inverse proportion to the number of sub-carriers assigned for the spreading of each information symbol. However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Appellant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to utilize a number of information symbols inversely proportional to the number of assigned sub-carriers since it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M. Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571.272.3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin M. Philpott

CHI PHAM
SUPERVISORY PATENT EXAMINER 10/10/06